

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

## PCT

To:

see form PCT/ISA/220

### WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/GB2004/003304

International filing date (day/month/year)  
02.08.2004

Priority date (day/month/year)  
04.08.2003

International Patent Classification (IPC) or both national classification and IPC  
B23G7/02

Applicant  
ADCOCK TECHNOLOGY LIMITED

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITYInternational application No.  
PCT/GB2004/003304

IAP20 Rec'd PCT/PTO 03 FEB 2006

## Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material:
    - ☐ in written format
    - ☐ in computer readable form
  - c. time of filing/furnishing:
    - ☐ contained in the international application as filed.
    - ☐ filed together with the international application in computer readable form.
    - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/GB2004/003304

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**Box No. II    Priority**

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1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

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**Box No. V    Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	1-17
	No: Claims	
Inventive step (IS)	Yes: Claims	1-17
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-17
	No: Claims	

2. Citations and explanations

**see separate sheet**

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING  
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/GB2004/003304

**IAP20 Rec'd PCT/PTO 03 FEB 2006**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

1.1 Reference is made to the following document:

D1: GB2324752, Richard Lloyd Ltd, 4 November 1998.

2.1 The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and shows (the references in parentheses applying to this document):

A tap adapted for formation of female screw-threads in a plurality of metal parts, each female screw-thread being capable of imparting translational motion to a threaded second member engaged therewith, the threaded second member having a matching male screw-thread and the translational motion occurring on relative rotation between the first metal part and the threaded second member, the tap being fluteless with a triangular form thread.

2.2 The subject-matter of claim 1 differs from this known tap in that the angle of thread is in the range  $29^{\circ}$  to  $40^{\circ}$  and that the crests are radiussed.

2.3 The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

2.4 The problem to be solved by the present invention may be regarded as providing a fluteless tap for tapping female threads that are optimised for providing translational movement.

2.5 The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

Although threads with the angle of thread in the range  $29^{\circ}$  to  $40^{\circ}$  are known in the art for providing translational movement (acme threads generally have an angle of thread of  $29^{\circ}$  to  $30^{\circ}$ ), these threads are trapezoidal in nature. Triangular threads (which may also be used to convert rotational movement into translational movement,

albeit with low efficiency) generally have an angle of thread in the range of 47° (BA series) to 60° (ISO unified and metric thread systems). A triangular female thread with triangular thread form having an angle of thread of between 29° and 40° with radiussed roots (corresponding to the radiussed crests of the tap claimed in claim 1) is neither known from, nor rendered obvious by, the available prior art for the purpose of converting rotary motion into translational motion.

- 2.6 Claims 2-14 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.
- 2.7 Independent claim 15 relates to a product formed using the tap of claim 1. Since a triangular female thread with triangular thread form having an angle of thread of between 29° and 40° with radiussed roots is neither known from, nor rendered obvious by, the available prior art, the subject matter of this claim is also novel and inventive.
- 2.8 Independent claims 16 and 17 both relate to methods of use of the new and inventive tap claimed in claim 1. The subject matter of these claims is therefore also considered as novel and inventive for the reasons stated in paragraph 2.5 above.
- 3.1 Independent claim 1 is not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art (document D1) being placed in the preamble (Rule 6.3(b)(I) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).

The features known in combination from the document D1 and therefore belonging in the preamble of such a claim are stated in paragraph 2.1 above.

- 3.2 The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).